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Just business

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Just Business

by
Cara Paul

Submitted in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF FINE ARTS

MFA Imaging Arts/ Computer Animation
SCHOOL OF FILM AND ANIMATION
ROCHESTER INSTITUTE OF TECHNOLOGY
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I. Thesis Proposal

A. The Story

Just Business is an animated satire about the politics that go on in the workforce. In this time of economic uncertainty, high unemployment and jobs that offer no benefits, no pension and no stability, I felt it time to speak out. Throughout almost ten years in the workforce, the acts that I have witnessed were sometimes obvious and sometimes subtle, but always, it seems to me, ridiculous in their blatant disregard of fellow human beings. I chose to create this film using 3d animation in order to give the characters and their environment a tangible look and feel while allowing me to manipulate them to emphasize the craziness of this behavior. My goal was to create a caricatured world in which viewers could relate to "the victims" and see the ludicrous way in which some behave in pursuit of... What? Are we searching for success, money and ultimately happiness? What is at the end of this journey? If we spend 98% of our time scrambling up the corporate ladder, is it worth it in pursuit of the 2% we have left to enjoy a pay off that may never come?

With all of these weighty thoughts in mind, I felt it important to present them in a way that would resonate with people without scaring them away. I decided to use humor as a way of reaching out to the audience. I didn't want the film to come off as a complaint. Rather, it is a comment on human behavior. I hoped it would serve as a reminder, to viewers, that our actions do have consequences. What happens to those we've stepped on along the way? Do we care? Do we even remember who they are and what they've done for us? These are some questions I had hoped to raise in the making of this film.

B. The Review Process

After coming up with my story, I decided to pare it down to something more metaphorical. I wanted to make it simpler and more fun to work on. I also thought that I might be able to make it more accessible to the general

audience if, instead of humans, I used animals to convey my story. I really love Pixar's short animated film, "For the Birds". It is a simple story that conveys a message clearly. To maintain technical simplicity, the film uses matte paintings for backgrounds. They also used the same model for almost all of the characters with minor modifications to indicate individual personalities. The humor and nuance of this piece is achieved through the wonderful character animation, which is something I really wanted to focus on in my own film.

I came up with a story about a wolf trying to become the leader of the pack. He does so by stepping on the heads of the other pack members and in the end, is abandoned by his group, leaving him alone atop a butte unable to get down without assistance.

When I met with the committee to propose my film, most members could not envision a connection between the office environment and the dog-eat-dog world I had tried to create in the wolf story. Malcolm, in particular, stated that he had liked my original story so much better and was disappointed that I had changed it.

After hearing the committee's comments, I returned to my original idea but continued to refine the story. It went through many more revisions before I felt that it was finally the story that I wanted to convey. Though I went back to using human characters, I found that I could still have fun using visual metaphors to describe common office idioms. For example, at one point in the film, the secretary finds herself under a physical glass ceiling, which then follows her around for the duration the story.

When I re-proposed my thesis film, the members of the committee stated that they much preferred this story to the first, more ambiguous, proposal. Their one concern was that my film would take a long time to create. It had four main characters and many "extras". While I had hoped to make a film with only one or two characters, so that I might really focus on the animation, I had a unique vision for the look of this film and wanted to pursue it. My second proposal was passed.

II. Pre-Production

In order to make negative issues more palatable to general audiences, I looked to something everyone can enjoy, the funny papers. Cartoon strips have a long history of making social and political commentary more acceptable by masking strong commentary with humor. I wanted this film to have the look of a cartoon strip that had been lifted right off the page. To achieve this look, I decided to keep the character and set designs simple. To attain the surreal but tangible look that I was going for, I wanted this 3d film to look more like stop-motion animation. I began researching other films with these qualities. I looked to the short film "Show and Tell" by Kapow Pictures for inspiration. While certainly not simplistic, this film had the stop motion look that I was interested in. The character design is very stylized and the character construction has the simplicity that I believed would work for my film.

A. Character Design

Since character design is not necessarily my strength, I kept my ideas simple. I sketched out a few faces and bodies for the four main characters: the Boss, the Manager, the Employee and the Secretary. Ultimately, I came up with an overall look for all of the characters that would work for the film.

The first character I designed was the Boss because his presence would set the tone for the entire piece. I wanted the Boss to look congenial when he wanted something from another character but also have the ability to look evil when he needed to be conniving. To achieve the congeniality, I gave the boss big, clear, blue eyes that would seemingly draw people in. He also has tufts of hair on each side of his head that can easily morph into devil-like horns when he is trying to get his way. His eyebrows are very expressive and are heavy so that they dominate his pleasant eyes. His mouth is large to represent that he has a lot to say even though his words have very little value. I made his body wide and heavy while his arms are too small in proportion

indicating that, while he “throws his weight around”, he is incapable of being effective. He has tiny feet that can barely support his mass representing that his balance is precarious. Here, balance can represent his personality or his position at the company.

The next character I worked on was the Manager. Though, in the story, he is surprised at his unprompted “promotion”, I wanted him to ease right into his new role. He is a “take charge” kind of guy who will use his manipulation skills to get what he wants. I gave him a big head to represent his self-confidence. Originally, I tried to give him the same eyes as the Boss but they just didn’t work as they seemed too expressive. Instead, I gave the Manager small, beady black eyes – the kind that you can’t trust. He has a big mess of blonde hair and a nice dark suit indicating that he spends a lot of time on his appearance. His teeth are large and perfect so that when he smiles, the blinding white mass becomes mesmerizing and the recipient of his attention will do whatever he wants.

The Employee was originally meant to be a bit part character but as the story developed, he ended up with a much larger role. I envisioned the Employee as a middle manager who has worked at the company for years doing the same thing with really no grand designs to move up in the ranks. Physically, he is a small man, which represents his stunted growth in the company. His hair is brown and his suit is brown so that he blends into the background and wouldn’t, seemingly, stand out from the crowd. He has a football shaped head with no particularly distinguishing features. He also has the same black beady eyes used for the Manager, yet in the Employee’s case, they are meant to be more vacuous.

The Secretary is an older woman who has worked at the company for many years. While she does not seemingly hold any position of authority, in truth, she is the eyes and ears of the office. To indicate this, her most defining feature is a pair of eyeglasses, which dwarf her eyes and extend well beyond the edge of her face. I wanted her to look bird like and very unassuming so I gave her a long, oval face with an angular nose. She does not wear a suit.

Rather, she dons more “grandmotherly” attire consisting of a comfortable dress, a cardigan sweater, and a pearl necklace. This difference in clothing from the rest of the cast indicates that she is comfortable in herself and in her position in the company. While those around her do not treat her as an important member of the company, she knows that she holds the whole organization together.

For the extra characters, I started with the faces of the Manager and Employee and the Secretary then modified them to create five new faces – 4 men’s faces and 1 woman’s face. For the extra male workers, I mixed and matched the extra faces with either the Manager’s body or the Employee’s body giving them different colored skin, hair and clothing. For an extra female character, I used the Secretary’s body as a base. I cut the dress in half to create a skirt then took the manager’s jacket and fit it to the smaller body to create a woman wearing a suit. In all, I ended up with six extra characters.

B. Environment Design

In order to focus the film on the characters, I decided to keep the environment simple. Yet it was important that the office environment stand as a physical representation of the hierarchical structure in which these characters were to play out their struggles. There are four levels to this hierarchy: “The Hive”, “The Management Level”, “The Schmoozer level”, and “The Top”.

The bottom-most layer I call “the hive” where the “worker bee” employees carry out their mundane and repetitive tasks. This level consists of identical desks lined up in evenly spaced rows. Pipes come out from the walls delivering piles of work at regular intervals. When work is completed, it is dropped into an out box. The out box subsequently opens from the bottom, depositing the completed paperwork into a wastebasket. The employees in this level have nowhere to go but up.

The Management level houses the three most important characters in my film. This level is at the center of the hierarchy and represents the heart of

the office. This level is where a career can really begin. All of these rooms have skewed walls, doorways and desks to create an uneasy feeling throughout.

The Secretary sits in the middle of this floor. Since I wanted her to represent the eyes and ears of the company, I thought it appropriate for her to occupy the nerve center of the entire office. Behind her, a huge clock ticks away the hours. I believe that anyone who has ever worked has had a day that they felt would never end. With this in mind, I set up this clock to run backwards. There are two doors on either side of this office both of which are reached by climbing up a few slight steps. These belong to the Manager and the Boss.

To the left of the Secretary and up a few steps sits the Manager's office. This office has pipes coming into it to drop papers into the in box but it also has pipes that take the papers away. On this level, the work that is done means a little more than the previous level in that it is not immediately thrown in the trash yet in the end, presumably, all of the paper ends up in "the hive" and are ultimately discarded.

On the right side of the Secretary's office, the door takes us into the Boss' office. He has a nice large desk on which to prop his feet when he's napping. His desk only hosts an out box and one pipe to take papers away. This is where the workflow begins to make its way down to the hive. This room has a hole in the ceiling that mysteriously opens up to allow just one person up to "The Schmoozer Level".

By the time a worker makes it "The Schmoozer Level", there are no more pipes and no more papers to be found. This level is all about networking, using others, doing whatever one has to do to make it to "the Top". This room is empty and has one hole in the ceiling, which is the only access to "the Top".

"The Top" is, of course, completely empty. It has no hole in its ceiling as there is nowhere else to go.

III. Production

Though I had completed two student films prior to my thesis, I still had so much to learn with regard to Computer Graphics film production. Working alone, a CG filmmaker must become well versed in modeling, texturing, rigging and skinning, lighting and animating. I have found that each stage of production is limited by how well the prior step was completed. Therefore, I had a lot of work to do at each stage before making sure that I was ready to move on to the next stage.

A. Modeling

When preparing to model characters and sets, the first decision to make is whether to use polygons or NURBS. I decided to use polygons to create my characters for two reasons. The first was simply that I had more experience using polygons for character modeling so I believed that this would make the process faster. The second, and more important reason is that I find it easier to prepare a model for texturing when using polygons. In order to texture a polygonal model, one must lay out the UV coordinates of the geometry. Each UV coordinate corresponds to a point on the model and therefore, gives a very clear and specific map for painting textures. One can select a point on the UV texture map and see exactly where that point is on the model. I had some ideas in mind for the overall look of this film but I wanted to have the flexibility to play with textures and allow for “happy accidents”.

When building my polygon models, I started with what is termed low poly models. That is, they are made with fewer faces than a final (or smooth poly) model. This is necessary for two main reasons. The first is that it is easier to lay out the UV maps with fewer points. The second reason is that the geometry can move more quickly when animating, making it easier to see the movement of a character.

In order to smooth the polygonal models, I used a Maya plug-in called CPS, or Connect Poly Shape, written by Dirk Bialluch. Though this plug-in provides many tools for working with polygonal models, its most powerful feature is its ability to create the smoothed version of a model while maintaining a connection to the low poly version of that model. This feature allowed me to make changes to a low poly model and immediately see how it will affect the final, smoothed version.

For the environment models, I used both polygons and NURBS. I chose whatever worked best for the item in question and I kept the models simple.

To prepare for facial expressions, I created blendshape models for each of the character's faces. A blendshape is a copy of original geometry that is then deformed to create new topology in that geometry. Once a blendshape model is created, it is connected to the original. It is then possible to morph between the two extremes. This is an excellent method for creating facial expressions.

When I began animating my winter film, I found that I had not created enough facial expressions for my needs. I was, therefore, limited in my animation. This time around, I made sure to create any and all expressions that I might want to use for my thesis film characters.

For the four main characters, I created 21 blendshape models for each. I split them up between the right and left side of the face so that I would have more options to mix and match. In order to achieve this, I modeled an expression for one side of the face. Once I was satisfied with the results, I duplicated this model and mirrored it. I then duplicated the default head model and placed it on top of the mirrored model. This made it easy to see the points that needed modifying. By snapping the points of the default model to the points of the mirrored model, the identical expression could be created for the other side of the face. Once completed, the flipped model was deleted and the model that remained served as the blendshape for the opposite side of the face.

The boss also required a blendshape model that allowed his hair to form into devil horns while the Employee required another that would make his necktie moveable. I also created six blendshapes for the pipes in each office so that they would be more interesting when spitting out papers.

B. Texturing

In order to get a surreal yet tangible feel for my film, I wanted my models to look as though they were made of physical materials as in a stop motion film. One CG artist that I researched, Matthieu Roussel (<http://www.mattroussel.com/>) had achieved this effect and I looked to some of his images as inspiration for my own work.

To get this look myself, I hand painted all of the textures for my characters and sets using two software programs: Corel Painter and Adobe Photoshop. Painter allowed me to create textures that looked as though they were made with real oil paints. The effect created varying degrees of thickness to the "ink" as well as visible paint strokes.

To get the look of clay for my characters, I used Lambert materials in Maya, which provide a matte finish. I then used the painted textures in the color channel of these materials to provide the overall colors for the models. These textures were then converted to grayscale and the contrast increased to create another texture that I could use as a bump map. Applying this bump map to the materials created the look of real paint strokes on my models.

Originally, I used this method for my sets as well. I was pleased with the results for the walls, floor and ceiling of the offices but it was too strong for the rest of the environment. I wanted the audience to focus on the characters so I needed my sets to blend more into the background.

I had been recently playing around with cartoon shaders in Maya. This type of shader uses the angle of a camera and the lights in the scene to define the geometry in the scene. When rendered, the shader uses the light and dark areas of an object to create a gradient fill while using the camera

angle information to create an outline of the geometry. This results in a final render that looks like a two-dimensional inked image.

This method, on its own, didn't fit with the look I had begun to create so, with a lot of trial and error, I came up with a hybrid shader that gave me an interesting look. From a tutorial, I wrote a simple cartoon shader as described above but instead of using just basic colors in the color channel of the materials, I used my painted textures. I also included my bump maps textures to regain the tangible look. This resulted in a look similar to the characters but one that was flatter so that the sets would fit into the background without stealing the limelight from the characters.

Because of an issue I ran into while lighting (discussed in the lighting section later), I also researched and tested a plug-in by Daniel Rind called "the Dirtmap Shader".

This shader mimics the shadow effects capable with Global Illumination yet with a fraction of the render time necessary for GI in Maya. It is applied to an entire shot and results in a black and white render that gives the illusion of deeper shadow where geometry begins to occlude. For example, the area where a character's foot hits the floor is very dark and lightens as it moves outward. This creates the effect of a contact shadow from the character's foot onto the floor.

During compositing, this black and white render is placed on top of a beauty shot and its color multiplied with the layer below. This allows the color of the beauty shot to show through while leaving the shadow areas visible thereby, creating a much richer version of the original image.

C. Rigging and Skinning

The process of rigging and skinning a character involves creating an articulated skeleton to which the model is then attached. Animation controls can then be predefined in order to compartmentalize movement. This step makes animating a character much more simple and intuitive. Character rigging was a process I had only completed one time before starting this film.

From that experience, I knew that if a character rig isn't well built, the model will be very difficult to animate later.

Since I was a novice character rigger, I needed some guidance. In the beginning, I looked into using two Maya plug-ins for rigging: Final Rig and Setup Machine. I found both to be somewhat complicated and un-intuitive. I also believed that I would have an easier time animating if I better understood how the rig was constructed.

I decided to set up a rig myself. I found a fantastic tutorial on the Web by Steven Tubbrit. This was the first tutorial I have ever followed that did not leave out a step or leave me hanging with a half completed character. This tutorial helped me to understand rigging and the creation of animation controls. Once understood, I had a great time setting up my own controls based on the actions I had planned for my characters to carry out.

D. Lighting

Lighting can be a difficult and arduous process so I was determined to keep it simple. I also wanted to maintain the cartoon strip look. I had planned to play with the saturation of the final renders in post-production so, at this point, I felt that the most important task was to light the environments and characters evenly.

First, I set up the lighting scheme for each office. I began by using a volume light that pointed inwards to light up the interior of the office and another volume light pointing out to light up the walls. I then included a point light to brighten up the overall scene. This created the flat, matte look that I was going for.

For each character, I started with a 3-point light setup. I then added some fill lights as well as back and top lights to round out the character lighting rig. Instead of importing characters into each shot file, I had already decided to reference character models into the shots. With referencing, when changes are made to the original character file, those changes proliferate throughout all of the files in which that character is referenced. This allowed

me to create only one lighting rig per character, which resided within each character's file.

The lighting rig was linked only to that particular character and had "illuminate by default" checked off so that it would not affect anything else in any scene in which it was referenced. By choosing this method, I knew that the characters would not cast shadows onto the sets. As I eluded to in the texturing section, I had planned to solve this issue by using the Dirtmap Shader and compositing the resulting renders later. In order to make sure that the light rig followed the character around, it was parented to that character's torso control. This was the only control for which it would maintain its relative position no matter what movement the character made during animation.

E. Layout

The story that I had laid out was a complicated one so I needed to stay organized. On paper, I broke the film down into shots. Based on my storyboards, there were 61 shots in total (See Appendix E).

When working in Maya, I like to save many versions of my work throughout the production process for both technical and creative reasons. On the technical side, I want to make sure that if I have computer problems, I won't lose my work. On the creative side, I like to try different things before deciding on a final version. I find it easier to save different files for each of these tests as opposed to relying on Maya's "undo" control. I knew that with 61 shots, I was going to have a lot of information to organize so I first developed naming conventions for my files that would make sense to me. I then created a directory structure for my files with a folder for each shot. Within each of those folders resided two more folders. The first, labeled "ANM", would hold my working animation files, the other, labeled "RND", would hold my final files once they were ready for rendering.

For each shot, I created a new file, created a new camera and imported the appropriate environment and props. I then referenced in the characters that I would need for that shot. As mentioned previously, I chose to

reference almost all of my character files into the shots so that if I had to make any changes, I would only have to do so to the main character file. Those changes would then take place in all of the files in which my character was referenced.

Now that I was organized, it was time to get to the fun part. I was ready to begin creating the cinematography and character blocking that would become the basis of my film. Though I had drawn out storyboards for my film, I had purposely kept them somewhat loose. After all the preparation that goes into making a 3d film, it isn't until now that I get to see all of my 3d elements in the same place at the same time. Therefore, I wanted to leave myself open to find the best camera angles and movements based on the elements in each scene.

Once I had my cameras set and the characters blocked out for each shot, I created a playblast for each shot in Maya. A playblast is, essentially, a moving screenshot. It is very low resolution and therefore doesn't look the greatest, but it results in an accurate representation of the shot and its timing. I then laid out each playblast in Premiere in order to see how the camera angles and timing were working together. At the end of this stage, though there are always changes along the way, I had a rough outline of my entire film and its timing.

F. Animation

After all that work setting up my characters and their environment, I was really excited to get working on the animation. This is the stage where the characters come to life and develop their own personalities. I couldn't wait to find out just who these people were that I had created.

My advisor, Duane, pointed me to a paper, written by Keith Lango, entitled "Pose to Pose Animation, Organized Keyframing and How it Works". In this paper, Lango breaks down animation into stages that are intuitive and most importantly, organized. I decided to follow his method.

For a scene, I began by blocking out the character's key, or main, poses. To achieve what Lango calls "post to pose" animation, I had to keep my animation curves stepped. This means that, as you move through the timeline, the first pose is held until the next one is reached at which point, it snaps to the new pose. This allowed me to focus on the big picture, setting up the key poses for each character without getting sidetracked by details.

Once satisfied with the key poses, I then returned to a shot to add more detailed movement. At this stage, I continued to keep my animation curves stepped. When animation curves are smoothed, the computer's interpolation between two poses can sometimes bring on strange results. Therefore, according to Lango, it is best to continue to add detail to the movement without the interference of the computer's calculations. Once I was happy with the action overall, I smoothed out the animation curves in order to get more fluid transitions between each movement. This method worked very well for me. When I finally smoothed out my animation curves, I had far fewer, "Maya anomalies" (as I like to call them) than I had had to reckon with in past projects.

Of course, there was always tweaking and finessing as well as outright changes to be made throughout this process. Animation is an art form unto itself. Though I would have liked to continue to work on the animation to make it better, the main goal of this film was to tell the story and I believe that I was able to do that.

IV. Post-Production

A. Rendering and Compositing

While working on the film's animation, I also began rendering the shots and compositing them together. Though I had the basic timing down for each shot, it was an ever-changing element. As I was animating and things were changing, I needed to see, continuously, how the shots were fitting together. I used Adobe Premiere to composite and edit my film.

In order to have flexibility in compositing, I chose to render each shot in layers. That is, each element in a shot, the background, any foreground elements as well as each character, were rendered out into individual files. This method allowed me to manipulate the elements separately. In this way, I was able to create a depth of field effect for close up shots by simply blurring the background. It was also simple to make any color corrections necessary to individual elements and even move characters from their original position.

Any mistakes that have been made up to now become glaringly obvious when you see the final rendering. Sometimes, the animation wasn't quite right, other times, textures were missing or a light was turned off. Therefore, I had to re-render every shot several times. Again, rendering in layers made this process less painful in that I only had to re-render the layer that needed fixing.

At this time, I began rendering the Dirtmap Shader pass discussed earlier. I found that the results I was achieving with this extra step were not as dynamic as I had expected. I decided that the effect did not warrant the amount of time it would take to re-render the entire film using this shader. Though I believe that this shader is an amazing application and can really create a wonderful look, I believe that I made the right decision for my film.

B. Sound Design

Since I wanted my film to be metaphorical and cartoon-like, I wanted the sound to match. When I began looking for the type of music I wanted to use, I researched a Website called <http://www.audiolicense.net/>. They list their music by genre so it was easy to try out different sounds.

Because of the richness of the environment I had created, I knew that digital-sounding music would not work for my film. I determined that I wanted music that sounded as though a full band of instruments were playing. I also gravitated towards music that sounded as though instruments were creating or mimicking sound effects.

One of my classmates had screened his film the year prior and I found his music to be dynamic and similar to what I was looking for. He gave me the name of his composer whom I contacted while still in the layout stage of production. This composer, Mark Hijleh, was not only talented but he was also quick! I sent him an early version of my film as well as some samples of music that I liked from the website previously mentioned. A few weeks later, he sent back a rough cut of the sound for the entire first half of the film. Though I had some minor suggestions, overall, I loved it. It was just what I had hoped for.

I had originally requested that we try to use some elevator-type music to create a certain environment when the Manager reached the second level. Mark delivered just what I had asked for yet it just didn't seem to work. My first thesis advisor, Duane, had made a suggestion early on that I use the same music throughout the film but that it could be played in different ways. By playing the same notes in a different tempo or with different instruments, I could convey different feelings for different stages of the film. I suggested this to Mark and he ran with it. After two more rounds of very minor changes, Mark delivered a final, amazing soundtrack that, I felt, matched my film perfectly.

At first, I found the music to be so strong that I thought about foregoing any sound effects. A classmate, Ginny Orzel, convinced me that adding foley sounds would only strengthen my film. Months earlier, Ginny had helped me to digitally recorded some sound effects. I had also recorded some voices with my co-workers, Raphael Shea and David Kirk. To round out my collection, I gather more sound effects from CDs and a few were downloaded from the Internet.

In the beginning of the compositing process, I chose to use Adobe Premiere because of its ability to work with sound in real time. It turned out that I had everything I needed to round out my film with sounds. In the end, Ginny was right; the sound effects grounded the film and really gave it more life.

V. Conclusion

When I proposed this idea for my thesis, I knew that it was going to be a very involved story to tell. I had hoped to come up with a more concise idea that could be told with only one or two characters and very few backgrounds. I suppose though, that sometimes, an idea just won't go away until you get it out. Though I still wish that I could have found a way to tell this story in a more succinct fashion, I do believe that my film did convey, successfully, the story that I set out to tell.

Most of the comments that I have received from others regarding the film involve the visual metaphors. Everyone who has approached me has said that they found the use of these visual idioms clever and funny. I am glad that these ideas resonated with the audience.

At the screening of my film, one professor, Johnny Robinson, made the comment that one of these scenes in particular really captured his attention. The scene he was referring to was the one in which the manager opens the secretary's head and steals ideas out of it. The ideas are represented by light bulbs that have wings and when they are set free from her head, they hit the floor and slowly die off. Johnny commented that it was the strongest scene in the film and really made use of animation as a medium for this kind of storytelling. He also stated that he missed having more scenes like this one in the film.

In response to his comments, I must say that I also wish I could have had more moments like that in the film. On the other hand, much of the film was dedicated to the introduction of the characters and the office environment and the set up of the situations leading up to those moments. For this reason, I still believe that the ideas I wanted to present could have been pared down into a more concise and metaphoric story.

Though I do believe that the production of this film was successful, I also believe that my initial instinct was right on: keep it simple. Since completing the film, I have come up with some other ideas that I would like to

pursue. When I get the chance to bring these ideas to fruition, I would like to work with other artists so that I can focus on the skills that I am best at or merely the ones that I want to practice, such as animation. If I decide to do another production on my own, I will keep it extremely simple so that I can better enjoy each stage of production without feeling overwhelmed.

I am interested in submitting this film to some smaller film festivals. While I don't believe that the production value of the film, as a whole, is up to par with other independent productions I have seen, I do believe that it has a unique look. I am curious to see how it will be received by a wider audience.

During the making of this film, I learned so many technical aspect of film production as well as the specifics of Maya and other software. But more importantly, I developed more confidence in my skills. Certainly, I am still a student of the art of animation and filmmaking but I now have the confidence to ask the questions that I need to ask, make the mistakes that I will certainly make, and take the chances that must be made in order to be successful.

Working Title: _____

Author(s): _____

Student ID: _____

Department: _____

First Name: _____ Last Name: _____

Working Title: _____

Student ID: _____

Page:

Section:

Appendix A

Thesis Proposal

Working Title:	The Queue	Start Date:	June 1, 2003
Producer:	Cara Paul	End Date:	May 24, 2004
Budget:	\$2200.00	Running Time:	4 minutes
		Release Format:	DVCam, VHS and DVD

Story

A man must use others to help him to achieve his goals but not everyone can come along to claim the reward.

Synopsis

A sea of faceless people bustles back and forth in a crowded room while small rats race around beneath their feet. A beam of light shines down from above. A long arm reaches down, plucking a random figure from the crowd, pulling this person out of the frame. Some people in the crowd do not notice and continue about their business while others slowly become aware and stop to watch this event. Their faces become more defined as they look up with anticipation for the arm to return.

The camera pans up to reveal a barren, bland office. A female secretary, sitting at a desk in the corner of the barren room, is typing. Across the room, a man sits at his desk filling out forms and carrying out other mundane tasks. Elevator music is playing in the background. The music fades as the camera pans over to the boss' office next door. As the camera pans, his feet propped on the desk are revealed. The camera follows his form to reveal the boss leaning back in his chair, breathing steadily. He is sound asleep.

The camera shakes as little bits of dust fall from the ceiling, landing on his face. He crunches up his nose and squints his eyes in his sleep but does not awaken. Another shake and little bits of plaster fall, landing on his desk and body as little swirls of dust cloud around his head. He snorts and moves as though bothered in his sleep before settling back into steady breathing. A larger shake, and bigger chunks of plaster and dust fall from the ceiling. He is abruptly awoken and very annoyed. After regaining his composure, he searches the ceiling to find

a crack that seems to border a trap door. It is covered but light is shining through the cracks around it and shadows are being cast from movement above. Angry and curious, he gets up from his desk to investigate further. He stands on his chair and then on his desk but he cannot reach the ceiling.

He goes to his office door, swings it open abruptly and motions to get his secretary's attention. When she looks up, he indicates that he wants her to come over to help him reach the ceiling. She stands up, walks over to his door, which is accessible by a few small steps up. She gets to the second step but is stopped short, her face plastered against an invisible "glass ceiling". She pushes against the glass, a look of confusion on her face, but nothing budes. As she continues her struggle, the boss, annoyed, turns to the other man in the office and indicates that he wants this man to follow him into his office. The man climbs the steps, looking at the secretary who is still trying to figure out what is stopping her from moving forward, as he passes her.

The two men move into the boss' offices and the man looks around amazed as though he has never seen it before. The boss, becoming increasingly impatient, begins to show his employee how he wants to be aided in reaching the ceiling. The man straightens his suit then crouches down. He forms a cradle with his hands and the boss, putting his foot in the cradle, is hoisted upwards. He still cannot reach the hole and motions for the man to let him down.

Once back on the ground, the boss, infuriated, points out the door shoing the employee away. The employee slumps his shoulders, defeated. He returns to his office where the secretary has returned to her typing. He motions for her to come help the boss. She points over to the "glass ceiling" without looking up continuing to type with one hand. The man thinks for a minute then looks to the floor. It turns transparent and the masses of people rushing underneath can be seen from above. It returns to its opaque form. He walks over to the edge of an area rug and lifts the corner to reveal a trap door in the floor. He can see the group of people rushing by below.

He reaches down, opens a man's head below like a flip top, and pulls something out. He opens his own head in the same manner and puts the

contents in his hand inside. He looks up with renewed anticipation, reaches down and randomly pulls another man up to his own level. The man, a bit surprised at this turn of events, looks around to take in his new surroundings. His new superior snaps him out of his reverie by grabbing his shoulder and yanking him over to the boss' door. He knocks lightly. There is no response. He knocks a little louder leaning his ear towards the door when it suddenly swings open. The boss pulls the employee into his office who, in turn, pulls the third man in. As the employee turns away, the boss pulls a knife out from behind his back, stabs it into the employee's back and uses it as a step. He reaches the ceiling hole and hoists himself up. The employee, not noticing the knife, looks around wondering where the boss went. He looks up at the hole and realizes that the boss must have disappeared through it. The man crosses his arms and looks down in thought trying to figure out how he might also get up there. The new employee is looking around the office in awe. The first employee suddenly notices the knife. He pulls it out of his back and realizing that the new man is unaware, sticks it in his back and uses it as a step. He pulls himself up through the ceiling.

The two men meeting above look at one another and the second man begins to cover the hole as before while the boss continues to brush himself off. As the man below realizes what has happened, the light from the hole slowly cuts off as the cover of the hole is replaced. The second man stands and the two, still straightening their suits, appear proud of themselves for reaching this new height. They look up to see that they have entered an identical room with a much higher ceiling. In the center of the room, balanced precariously, is a stack of men piled one atop the other. The "chain" of people is swaying back and forth and the man on top is just out of reach of another door. It is apparent that they only need one more person to complete the chain. The two new men look at one another and, simultaneously, run towards the stack of people and begin climbing over the other men to get to the top.

As they climb up, the members of the stack try to knock the employee down to the ground. As he's dangling from the stack, he looks up past the people teetering above him to see the boss getting close to the top. He lifts himself up to

a more secure position and hoists the man above him and therefore, the whole stack, onto his shoulders. This lift is enough to allow the boss to reach the hole.

As the boss disappears through the hole, the people on the stack grab onto the leg of the man above. They are all lifted up, people dangling precariously. Some make it to the top while others fall back to the ground. The camera focuses on the face of the employee as he looks up horrified that he didn't make it.

The camera cuts to the boss pulling himself up from a hole in the floor. As he stands up, he brushes himself off and slides the cover back over the hole with the flick of his foot. He looks up to find that he is in an empty room. There is no hole in the ceiling. There are no windows, doors, or furniture.

The camera zooms out away from him with a depth of field that makes the room appear cavernous and the boss very small. Fade to black.

Approach

This film will be produced in 3D using Alias | Wavefront Maya, composited in Adobe After Effects and edited in Adobe Premiere or Final Cut Pro. Textures will be created with Adobe Photoshop. The textures in this piece will start off in muted browns, reds, and off-white tones. As the boss moves up towards the top, the colors will become more de-saturated and will finish in the final room in black and white. I intend to work with a composer to score the piece. Additional sound effects, including the elevator music at the beginning, will come from royalty free sources as well as my own recording efforts.

Appendix B

Budget and Timeline

Working Title: The Queue
Producer: Cara Paul
Budget: \$2200.00

Start Date: June 1, 2003
End Date: May 24, 2004
Running Time: 4 minutes
Release Format: DVCam, VHS and DVD

Budget Summary

Industry Production

Wages & Salaries	\$112,000.00
Administration	\$32,590.00
Pre-production / R & D	\$3,500.00
Production	\$3,134.00
Post Production	\$10,100.00
Distribution	\$1,350.00
Subtotal	\$162,674.00
Contingency (10%)	\$16,270.00
Total	\$178,944.00

Student Production

Wages & Salaries	\$0.00
Administration	\$0.00
Pre-production / R & D	\$200.00
Production	\$200.00
Post Production	\$250.00
Distribution	\$1,350.00
Subtotal	\$2,000.00
Contingency (10%)	\$200.00
Total	\$2,200.00

Working Title: The Queue
Producer: Cara Paul
Budget: \$2200.00

Start Date: June 1, 2003
End Date: May 24, 2004
Running Time: 4 minutes
Release Format: DVCam, VHS and DVD

Wages & Salaries

Above the Line

	Budget	Actual
Director - Flat Rate	\$30,000.00	\$0.00
Writer - Flat Rate	\$10,000.00	\$0.00
Producer – 20% box office take	TBD	\$0.00
Total	\$40,000.00	\$0.00

Below the Line

Lead Animator \$40 /sec x 240 seconds	\$9,600.00	\$0.00
Technical Directors \$500/scene x 20 scenes	\$10,000.00	\$0.00
Animator \$25/ sec x 240 seconds	\$6,000.00	\$0.00
Modelers \$600/wk x 10 weeks	\$6,000.00	\$0.00
Texture Artists \$600/wk x 10 weeks	\$6,000.00	\$0.00
Lighting Artists \$600/wk x 10 weeks	\$6,000.00	\$0.00
Compositors \$1,500/wk x 4 weeks	\$6,000.00	\$0.00
Layout Artists \$600/wk x 4 weeks	\$2,400.00	\$0.00
Editors \$1,200/wk x 4 weeks	\$4,800.00	\$0.00
Graphic Artists \$600/wk x 4 weeks	\$2,400.00	\$0.00
Original Music Score – Flat Rate	\$8,000.00	\$0.00
Sound – Foley Recording \$600/wk x 8 weeks	\$4,800.00	\$0.00
Total	\$72,000.00	\$0.00

Wages & Salaries Total \$112,000.00 \$0.00

Administration

	Budget	Actual
Telephone \$15.00/mnth x 12 months	\$180.00	\$0.00
Xerox \$0.10/copy x 100 copies	\$10.00	\$0.00
Postage - assumed	\$250.00	See distribution
Insurance \$150.00/year x 1 year	\$150.00	\$0.00
Legal – based on industry costs	\$20,000	\$0.00
Accounting – based on industry costs	\$10,000	\$0.00
Overhead	\$2000.00	\$0.00
Administration Total	\$32,590.00	\$0.00

Pre-production / R & D

	Budget	Actual
Materials (CDs, zip disks, paper, etc.)	\$200.00	\$200.00
Storyboard \$50/frame x 20 frames	\$1,000.00	\$0.00
Character Design \$500/character x 1 main character \$250/character x 4 characters	\$1,500.00	
Animatic \$20/hr. x 40 hours	\$800.00	
Pre-production / R & D Total	\$3,500.00	\$200.00

Production

	Budget	Actual
Software \$6000.00 / 3 years	\$2,000.00	\$0.00
Hardware		
Computer \$3000.00 / 3 years	\$1,000.00	\$200.00
External hard drive \$250.00/3 years	\$84.00	
Printer \$150.00/3 years	\$50.00	
Production Total	\$3,134.00	\$200.00

Post Production

	Budget	Actual
Music rights flat rate x 1 time fee	\$1,000.00	\$250.00
Title Design flat rate x 1 time fee	\$5,000.00	\$0.00
Equipment Rental flat rate x 1 time fee	\$5,000.00	\$0.00
Post Production Total	\$10,100.00	\$250.00

Distribution

	Budget	Actual
Media		
VHS 50 x \$1.00/tape	\$50.00	\$50.00
DVD 10 x \$5.00/disk	\$50.00	\$50.00
Festival Fees	\$50.00	\$50.00
Travel Expenses	\$1,000.00	\$1,000.00
Packaging	\$100.00	\$100.00
Postage	\$100.00	\$100.00
Distribution Total	\$1,350.00	\$1,350.00

Working Title: The Queue
Producer: Cara Paul
Budget: \$2200.00

Start Date: June 1, 2003
End Date: May 24, 2004
Running Time: 4 minutes
Release Format: DVCam, VHS and DVD

TimeLine

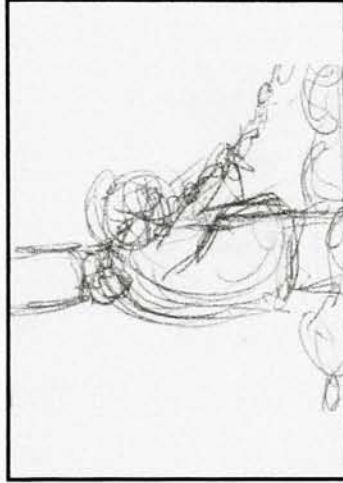
Script - draft 1	1 week	June 1 – June 6
Script - Final	1 week	June 7 – June 13
Character Sheets	2 weeks	June 14 – June 30
Storyboards Finalized	2 weeks	June 14 – June 30
Vocal recording (if necessary)		completed by July 31
Other Sound FX recording		completed by July 31
Timing Sheets		completed by July 31
Animatic	1 month	June 31 – July 31
Character modeling	1 month	Aug 1 - Sept 1
Committee Review		
Character texturing	1 month	Sept 1 – Oct 1
Character rigging	1 month	Oct 1 – Nov 1
Environment modeling	1 month	Nov 1 – Dec 1
Environment texturing and pre-lighting	3 weeks	Dec 1 – Dec 22
Committee Review		
Animation	3 months	Jan 1 – March 31
Rendering	2.5 months	Feb 1 - April 15 (overlap)
Final Sound Edit	2 weeks	April 1 – April 15 (overlap)
Compositing	2 months	March 1 – May 1 (overlap)
Committee Review		
Title/Credit Design and Edit	1 day	May 1
Final Editing	2 weeks	May 1 - 15
Output for transfer	2 days	May 15 - 17
Transfer to media	1 day	May 18
Thesis Screening		TBA
Thesis Report + DVD to dept. / Institute	1 week	May 24

Appendix C

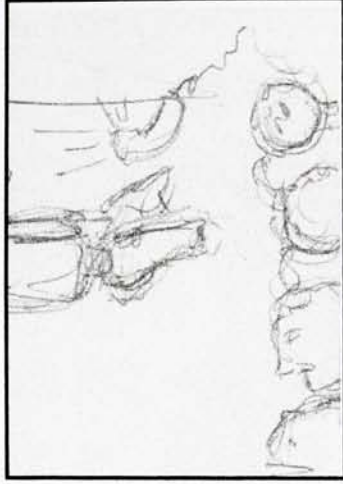
Original Storyboard



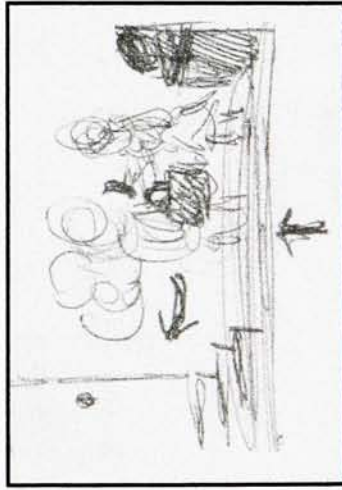
01 - camera pan from long shot to side view. Employees are running around in chaos but noone is accomplishing anything.



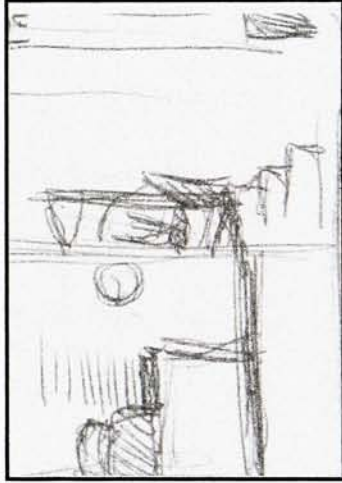
02 - an arm reaches down and randomly plucks one employee up out of the crowd.



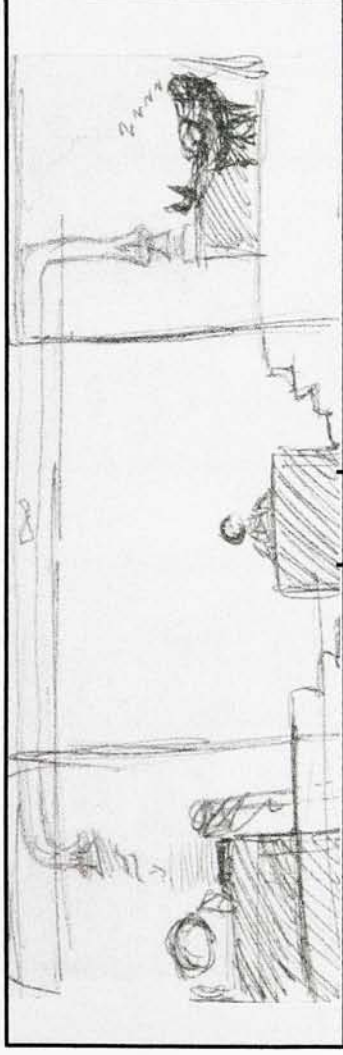
03 - the chosen employee, surprised, rises up out of the crowd as the others look up in awe.



04 - the employee finds himself on a new level. He is greeted by the secretary who hands him work and shoos him into an office.



05 - he slumps off into the new office where a lot of paper work awaits him. He is completely bewildered.



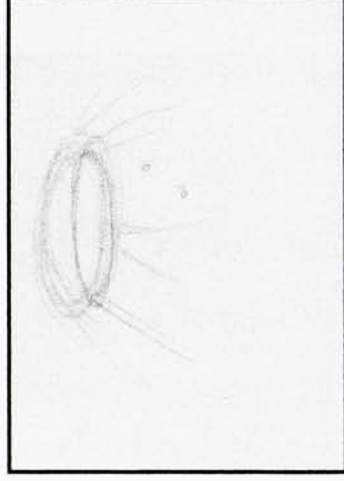
06 - Camera pans from employees new office through secretary's office (where she is sitting in front of a large clock that is moving backwards) through to the boss's office. The boss is seen sleeping as his paper work is taking care of itself.



07 - As the boss is snoring, bits of dust and debris fall from the ceiling making him stir.



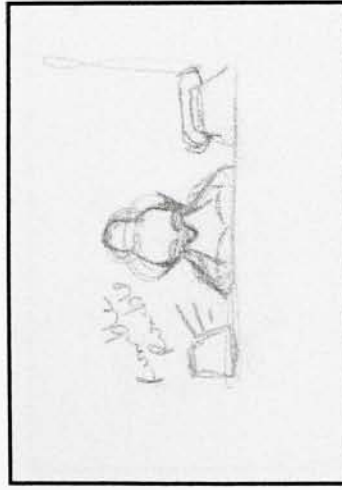
08 - The boss wakes up abruptly



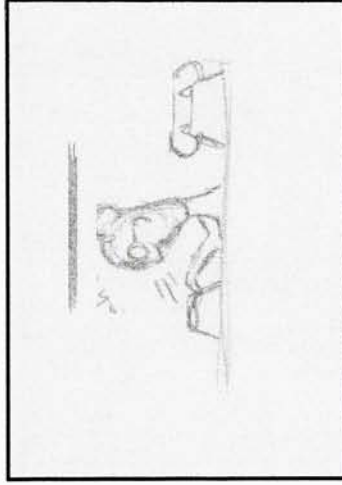
09 - POV shot of a hole in the ceiling. Light filters through the edges.



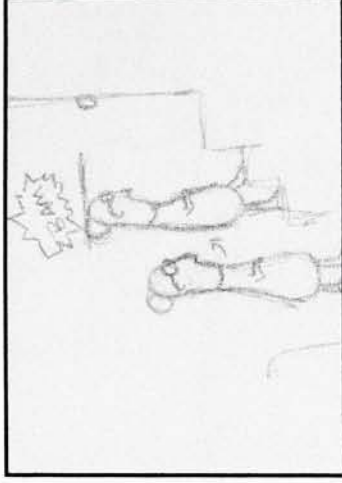
10 - The boss talks into his intercom.



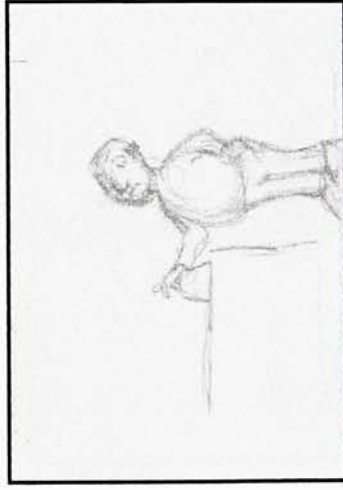
11 - The boss's voice blasts out from the secretary's intercom.



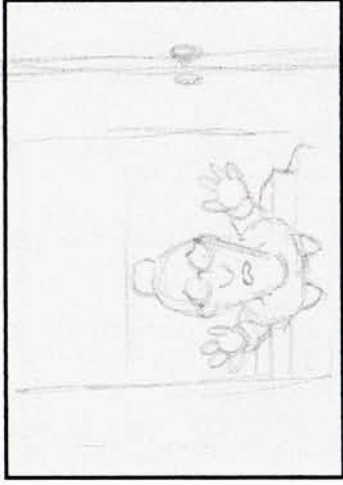
12 - She responds and gets up from her desk. A "glass ceiling" hanging over her head follows her.



13 - As she climbs the stairs to the boss' office, the glass ceiling doesn't rise and she finds herself stuck underneath.



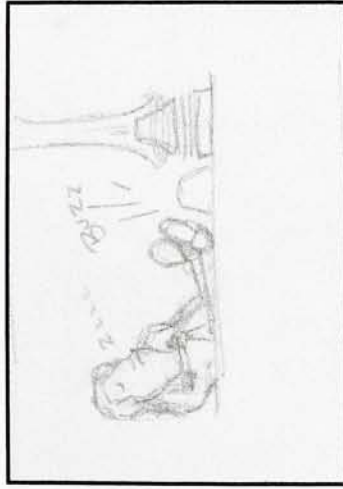
14 - The boss impatiently continues to buzz the intercom but there is no answer.



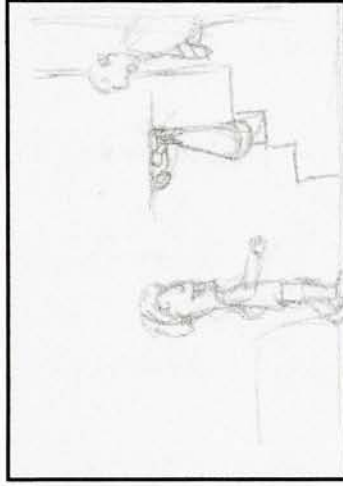
15 - POV shot. The boss opens the door to find the secretary's face pressed up against the glass ceiling.



16 - Cut to boss' reaction. He is surprised and annoyed. He turns back into his office, closing the door on the secretary.



17 - The employee, having figured out the trick to succeeding, is awakened by the intercom buzzer.



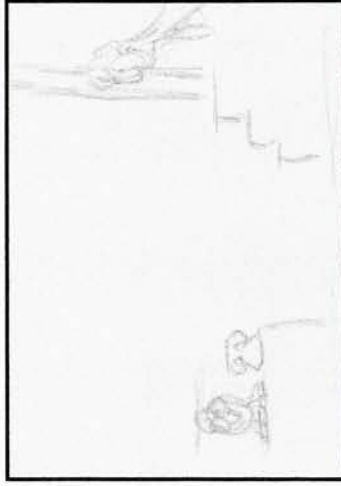
18 - The employee is surprised as he walks by the secretary stuck under her glass ceiling and heads into the boss' office.



19 - The boss shows the employee the hole in the ceiling and indicates that he wants his help.



20 - The boss tries to reach the ceiling using the employee but he can't.



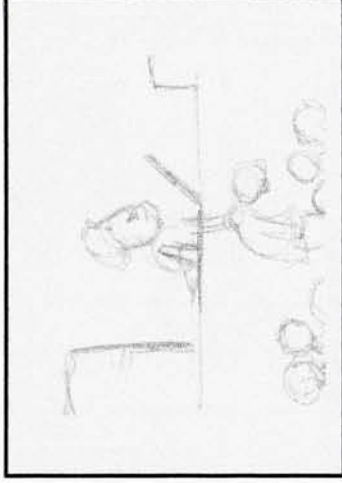
21 - The employee peeks out of the office and invites the secretary to come in to help. Without looking up, she points to the glass ceiling over her head.



22 - The employee sidles up to the secretary, opens her head and steals "an idea" out of it. He flips his own head open and pops it inside.



23 - The employee gets an idea.



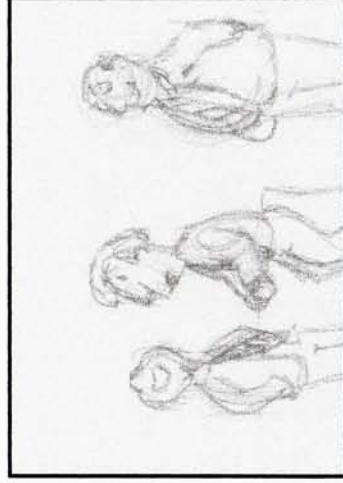
24 - The employee reaches through a hole in the floor and plucks up another employee.



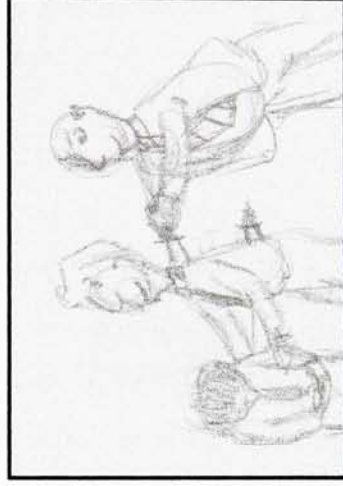
25 - The employee drags the new guy into the boss' office.



26 - The employee introduces the new guy.



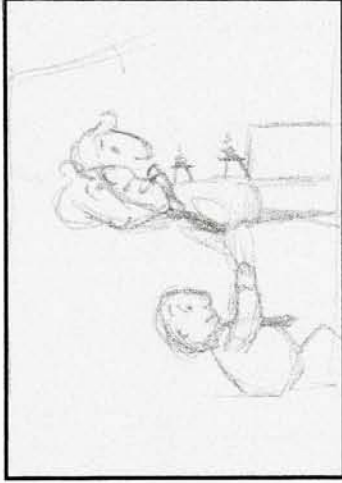
27 - As the employee is showing the new guy what to do, the boss is plotting his own scheme.



28 - The boss pulls knives from behind his back and stabs the employee in the back.



29 - The boss uses these knives as a ladder to climb up.



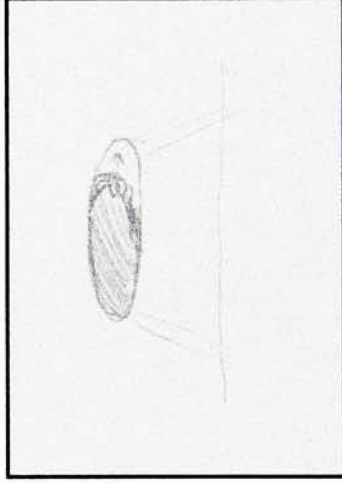
30 - The employee turns around to get the boss only to find that the boss is gone.



31 - As the employee is trying to figure out where the boss went, the new guy uses the knives to climb up himself.



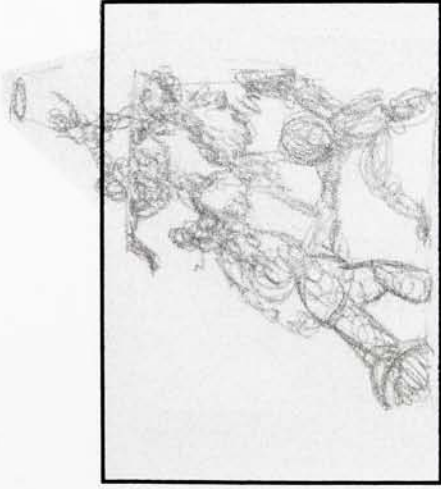
32 - The employee turns around again to find himself all alone. He looks up to the hole in the ceiling.



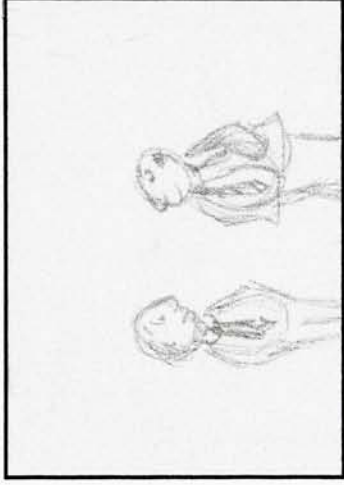
33 - The light from the trap door above is cut off as the cover is closed.



34 - The new guy dusts himself off and looks up to see the boss looking up at something.



35 - The camera pans to reveal a tower of people piled atop one another trying to reach another hole in the ceiling. It is just out of reach.



36 - The look at one another, sizing each other up.



37 - The two guys run out of the shot.



38 - The new guy starts climbing.



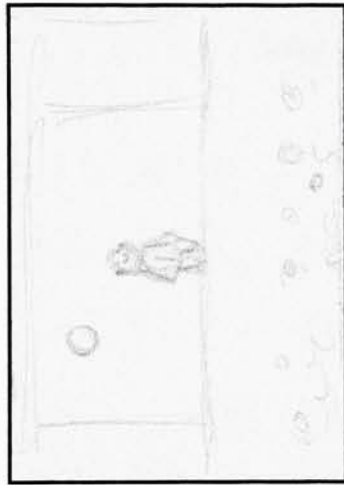
39 - The boss starts climbing.



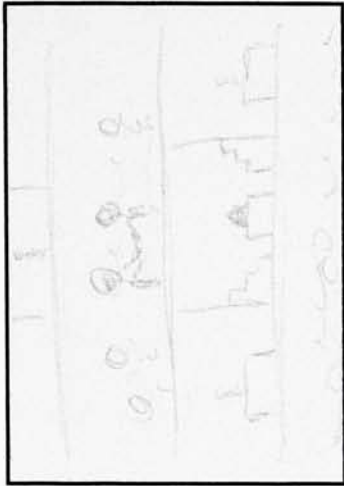
40 - The boss reaches the top but the hole is just out of reach. The new guy gets there just after and uses the boss' head to step up and reach the hole.



41 - The new guy looks around his new only to find that the room is empty.



42a - Camera pans out to see the chaos of the disintegrated pile of people left behind.



42b - Camera continues to pan out to see the entire hierarchy.

Appendix D

Color Screenshots











Appendix E

Rendering Spreadsheet

Render Spreadsheet

Widescreen Resolution 720 x 405

Regular Resolution 720x 486

* use 3D motion blur

File name	Start frame	End frame	ANM STATUS	LIGHTING STATUS	RND STATUS	Description
RND_Scn01b_V08.mb	-95	540	Done	Done	DONE	Office atmosphere
RND_Scn01CU_V01.mb	0	90	Done	Done	DONE	CU paper process
CHO_Scn01c_V11.mb	0	400	Done	Done	DONE	boss hand pulling mngr up
CHO_Scn01cCU_V11.mb	140	260	Done	Done	DONE	CU boss hand pulling mngr up
RND_Scn02a.mb	0	145	Done	Done	DONE	Manager pulled up to 2 nd level
RND_Scn02b.mb	30	150	Done	Done	DONE	POV Secretary behind paper
RND_Scn03.mb	0	210	Done	Done	DONE	Secretary hands Mngr paper
RND_Scn04.mb	0	180	Done	Done	DONE	Manager enters office
RND_Scn05a.mb	0	45	Done	Done	DONE	Manager intro to office - short
RND_Scn05b1.mb	120	240	Done	Done	DONE	Manager intro to office – paper shoots out
RND_Scn05b2.mb	241	320	Done	Done	DONE	Manager intro to office – paper shoots out
RND_Scn05c.mb	0	260	Done	Done	DONE	Manager intro to office - pan to secretary office

File name	Start frame	End frame	ANM STATUS	LIGHTING STATUS	RND STATUS	Description
RND_Scn05c_panSec.mb	0	120	Done	Done	DONE	Cam pan across secretary office
RND_Scn06.mb	0	200	Done	Done	DONE	Cam pan to boss sleeping in office – boss intro
RND_Scn07.mb	30	310	Done	Done	DONE	CU Boss waking up – light shining
RND_Scn08anm.mb	0	60	Done	Done	DONE	Hole in ceiling opening up
RND_Scn08.mb	0	115	Done	Done	DONE	Still shot of hole in ceiling
RND_Scn09.mb	0	100	Done	Done	DONE	Boss buzzing intercom
RND_Scn10CU.mb	0	130	Done	Done	DONE	Boss buzzing secretary
RND_Scn11.mb	0	260	Done	Done	DONE	Secretary intercom buzz
RND_Scn11CU.mb	60	85	Done	Done	DONE	Secretary intercom buzz (CU)
RND_Scn11b.mb	0	65	Done	Done	DONE	CU – secretary stuck under ceiling
RND_Scn12.mb	0	100	Done	Done	DONE	POV – boss reaction to secretary
RND_Scn13.mb	20	110	Done	Done	DONE	POV – secretary stuck under ceiling
RND_Scn14.mb	0	170	Done	Done	DONE	Manager working in office
RND_Scn15.mb	0	30	Done	Done	DONE	Manager walking to boss' office
RND_Scn15CU.mb	30	120	Done	Done	DONE	CU of Mngr seeing Secretary
RND_Scn16.mb	0	425	Done	Done	DONE	Boss first attempt to climb on Mngr.

File name	Start frame	End frame	ANM STATUS	LIGHTING STATUS	RND STATUS	Description
RND_Scn16CU.mb	0	30	Done	Done	DONE	CU finger pointing to hole in ceiling
RND_Scn17.mb	0	290	Fix	Done	DONE	Mngr calls to Secretary
RND_Scn18CU.mb	0	50	Done	Done	DONE	CU – Manager twiddling fingers
RND_Scn19start.mb	-30	0	Done	Done	DONE	Mgr. Standing over secretary
RND_Scn19.mb	-30	310	Done	Done	DONE	Mgr. Opens secretary's head
RND_Scn19CU.mb	45	160	Done	Done	DONE	CU of secretary's head
RND_Scn19CULightbulb.mb	0	80	Done	Done	DONE	CU of Lightbulb on desk
RND_Scn20.mb	0	180	Done	Done	DONE	Manager fishing in hole for Employee
RND_Scn22.mb	5	70	Done	Done	DONE	Manager drags Employee by tie
RND_Scn23.mb	0	170	Done	Done	DONE	Manager introduces Employee
RND_Scn24.mb	0	80	Done	Done	DONE	Boss introduces knife
RND_Scn25.mb	0	525	Done	Done	DONE	Boss sticks knives in back and climbs up. Employee goes up after
RND_Scn25CUface.mb	130	200	Done	Done	DONE	Manager Reaction CU
RND_Scn25CU.mb	250	320	Done	Done	DONE	POV – CU knives in Mngr's back
RND_Scn26.mb	30	75	Done	Done	DONE	POV - Boss climbing through ceiling hole
RND_Scn27a.mb	0	190	Done	Done	DONE	POV - Employee climbing through ceiling hole

File name	Start frame	End frame	ANM STATUS	LIGHTING STATUS	RND STATUS	Description
RND_Scn27b.mb	90	250	Done	Done	DONE	Shot of Manager alone in office
RND_Scn28.mb	0	285				Intro to Tower of People
- background			Done	Done	DONE	
- boss & employee			Done	Done	DONE	
- Light			Done	Done	DONE	
- Tower					DONE	
RND_Scn29a.mb	0	90	Done	Done	DONE	Boss turns to Employee
RND_Scn29b.mb	0	70	Done	Done	DONE	Employee runs out of frame
RND_Scn29c.mb	0	55	Done	Done	DONE	Boss grabs Employee – throws him
RND_Scn30a.mb	0	170				Boss starts to climb tower
- background			Done	Done	DONE	
- boss			Done	Done	DONE	
- Tower					DONE	
RND_Scn30b.mb	0	60	Done	Done	DONE	Shot of Employee lying on the ground
RND_Scn30c.mb	0	120				Boss climbing tower - higher
- background			Done	Done	DONE	
- boss			Done	Done	DONE	
- Tower					DONE	
RND_Scn30d.mb	0	105				Employee starts to climb
- background			Done	Done	DONE	
- employee			Done	Done	DONE	
- Tower					DONE	

File name	Start frame	End frame	ANM STATUS	LIGHTING STATUS	RND STATUS	Description
RND_Scn30dCU.mb	40	105				Employee climbing shot down
- background			Done	Done	DONE	
- Characters					DONE	
RND_Scn31a.mb	0	200	Done	Done	DONE	POV shot of Boss reaching for ceiling
RND_Scn31aCU.mb	170	270	Done	Done	DONE	CU of tower trying to hold boss up
RND_Scn31aCUHand.mb	110	170	Done	Done	DONE	CU of boss' hand reaching for hole
RND_Scn31b.mb	205	445	Done	Done	DONE	Employee climbs over boss
RND_Scn32a.mb	0	95	Done	Done	DONE	Employee Stands up in new office
RND_Scn32b.mb	0	160	Done	Done	DONE	POV shot of empty office - walls
RND_Scn32c.mb	40	215	Done	Done	DONE	Employee reaction
RND_Scn32d.mb	40	430	Fix	Done	DONE	Final Shot

61 Shots total